slags offer the advantage which silica presents in the already combined state. This slag then needs, besides the requisite iron ore, only a little lime and the addition of only so much manganese compounds as corresponds to the manganese reduction which will occur during the decarburisation.

Tapping of the metal at the end of the first operation and returning the same into the furnace involves heat losses which must be replaced. Further, the heat for the production of the second slag is needed, and this total surplus amount of heat as well as the loss of time, which is caused by all the operations mentioned, involves, as opposed to the usual method of the open-hearth process, surplus costs, but which are very amply made up for by the revenue from the phosphatic slag by-product.

It will occur at times that the blast furnaces are not in the position to maintain the requisitely low silicon content of the pig iron. One does not want in this ease to waive the advantage of useful open-hearth furnace slag, but one may remove the excess of silicon in the transport ladle by means of corresponding amounts of ore during the tapping from the blast furnace, and rectify the composition of the same without difficulty. The resultant ladle slag, however, one might render useful for the complete decarburisation in the second operation in the open-hearth furnace, since this slag contains, in addition to silica and iron protoxide, usually ample manganese, which was eliminated from the pig iron. The cost of such an operation need be debited neither to the blast furnace nor the open-hearth furnace, provided the same is not demanded to too great extent, and not too frequently.